comprising small portions of blood vessels transplanted into mammary fat pad of a scid/scid mouse. The engraftment in the mammary fat pad provides for efficiencies in transplantation, higher success rate of transplantation, and improved growth of the transplanted organ.

18. 5,413,923, May 9, 1995, Homologous recombination for universal donor cells and chimeric mammalian hosts; Raju Kucherlapati, et al., 435/172.3, 320.1, 371; 935/70, 71 :IMAGE AVAILABLE:

US PAT NO: 5,413,923 :IMAGE AVAILABLE: L3: 18 of 20

ABSTRACT:
Homologous recombination is employed to inactivate genes, particularly genes associated with MHC antigens. Particularly, the .beta..sub.2 -microglobulin gene is inactivated for reducing or eliminating Class I MHC antigens. The resulting cells may be used as universal donors. In addition, embryonic stem cells may be modified by homologous recombination for use in producing chimeric or **transgenic** mammalian hosts, which may be used as source of universal donor organs, or as models for drug and transplantation therapies.

19. 5,314,813, May 24, 1994, Drosophila cell lines expressing genes encoding MHC class I antigens and B2-microglobulin and capable of assembling empty complexes and methods of making said cell lines; Per A. Peterson, et al., 435/172.3, 320.1, 348 :IMAGE AVAILABLE:

US PAT NO: 5,314,813 :IMAGE AVAILABLE: L3: 19 of 20

ABSTRACT:
The present invention relates to a rational, elegant means of producing, loading and using Class I molecules to specifically activate CD8 cells in vitro, and their therapeutic applications in the treatment of a variety of conditions, including cancer, tumors or neoplasias, as well as viral, retroviral, autoimmune, and autoimmune-type diseases. The present invention also relates to vectors, cell lines, recombinant DNA molecules encoding human .beta.2 microglobulin or Class I MHC molecules in soluble and insoluble form, and methods of producing same.

20. 5,283,058, Feb. 1, 1994, Methods for inhibiting rejection of transplanted tissue; Denise Faustman, 424/152.1, 172.1, 809, 810 :IMAGE AVAILABLE:

US PAT NO: 5,283,058 :IMAGE AVAILABLE: L3: 20 of 20

ABSTRACT:
A method for inhibiting rejection by a recipient animal of a transplanted tissue, said method comprising modifying, eliminating, or masking an antigen which, when present on the surface of a cell of said tissue, is capable of causing a T-lymphocyte-mediated response in said animal, to inhibit antigen-mediated interaction between said cell and a T-lymphocyte of said animal without causing lysis of said cell.

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=> s transgenic
L1        1418 TRANSGENIC

=> s l1 and xenogeneic
           372 XENOGENEIC
L2          31 L1 AND XENOGENEIC

=> s l2 and immunoglobulin?
          7948 IMMUNOGLOBULIN?
L3          20 L2 AND IMMUNOGLOBULIN?

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1. 5,698,767, Dec. 16, 1997, Human immune system in non-human animal; Darcy B. Wilson, et al., 800/2; 424/9.1, 93.1, 93.7, 93.71, 534, 577, 578; 435/325; 800/DIG.2, DIG.5 :IMAGE AVAILABLE:

US PAT NO: 5,698,767 :IMAGE AVAILABLE: L3: 1 of 20

ABSTRACT:
Laboratory non-human animals in which the immune system of a donor is induced in and thrives in vivo and expresses the immune response of the donor animal in a recipient non-human animal of a different species than the donor, and wherein malignant immune system cells of the donor can be induced in the recipient non-human animal by injection of non-malignant donor into the recipient are disclosed.

2. 5,683,693, Nov. 4, 1997, Method for inducing T cell unresponsiveness to a tissue or organ graft with anti-CD40 ligand antibody or soluble CD40; Randolph J. Noelle, et al., 424/144.1, 130.1, 133.1, 134.1, 141.1, 143.1, 154.1, 173.1; 514/2, 8, 885 :IMAGE AVAILABLE:

US PAT NO: 5,683,693 :IMAGE AVAILABLE: L3: 2 of 20

ABSTRACT:
Methods for inducing T cell unresponsiveness to a tissue or organ graft in a transplant recipeint are disclosed. The methods involve administering to a subject: 1) an allogeneic or **xenogeneic** cell which expresses donor antigens and which has a ligand on the cell surface which interacts with a receptor on the surface of a recipient T cell which mediates contact-dependent helper effector function; and 2) an antagonist of the receptor which inhibits interaction of the ligand with the receptor. In a preferred embodiment, the allogeneic or **xenogeneic** cell is a B cell, preferably a resting B cell, and the molecule on the surface of the T cell which mediates contact-dependent helper effector function is gp39. A preferred gp39 antagonist is an anti-gp39 antibody. The allogeneic or **xenogeneic** cell and the gp39 antagonist are typically administered to a transplant recipient prior to transplantation of the tissue or organ. The methods of the invention can be used to induce T cell unresponsiveness to transplants such as liver, kidney, heart, lung, skin, muscle, neuronal tissue, stomach and intestine. A method for treating diabetes comprising administering to a subject allogeneic or **xenogeneic** cells expressing donor antigens, a gp39 antagonist and pancreatic islets is also disclosed.

3. 5,654,173, Aug. 5, 1997, Secreted proteins and polynucleotides encoding them; Kenneth Jacobs, et al., 435/69.1, 252.3, 326; 536/23.5

:IMAGE AVAILABLE:

US PAT NO: 5,654,173 :IMAGE AVAILABLE: L3: 3 of 20

ABSTRACT:
Novel polynucleotides and the proteins encoded thereby are disclosed.

4. 5,652,373, Jul. 29, 1997, Engraftment and development of **xenogeneic** cells in normal mammals having reconstituted hematopoetic deficient immune systems; Yair Reisner, 800/2; 424/9.1, 9.2, 93.1, 577; 435/172.3 :IMAGE AVAILABLE:

US PAT NO: 5,652,373 :IMAGE AVAILABLE: L3: 4 of 20

ABSTRACT:
Non-human chimeric mammals are created from a mammal having hematopoietic cells replaced with hematopoietic cells from a hematopoietic deficient mammal donor, and optionally in which **xenogeneic** cells and/or tissue are engrafted. The **xenogeneic**, preferably human, cells or tissue may be hematopoietic cells, in which case the chimeric mammal can produce **xenogeneic** B and/or T cells, and can be used as a source of mammalian, preferably human, monoclonal antibodies and/or T cells. Alternatively, the **xenogeneic** cells or tissue may be non-hematopoietic, such as normal or pathological cells or tissue, which can form a stable transplant in the chimeric mammal and thus can be used as an animal model of various pathologies or to test therapeutic or diagnostic agents or modalities.

5. 5,643,763, Jul. 1, 1997, Method for making recombinant yeast artificial chromosomes by minimizing diploid doubling during mating; Barbara Dunn, et al., 435/91.1, 6, 91.2, 320.1; 536/24.3, 24.31, 24.32, 24.33 :IMAGE AVAILABLE:

US PAT NO: 5,643,763 :IMAGE AVAILABLE: L3: 5 of 20

ABSTRACT:
The present invention provides methods for construction of recombinant Yeast Artificial Chromosomes ("YAC") by homologous recombination between YACs during meiosis. In particular, conditions are provided for the step of mating haploid cells and for the step of spore analysis that increase the frequency of spores containing the desired recombinant YAC. The methods find particular use in constructing recombinant YACs between YACs that are incompatible when co-propagated in a diploid and/or that share homology regions of less than about 50 kilobases. Linking YACs, methods of their construction, and methods of their use are provided that allow facile construction of a YAC containing two or more discontinuous regions of DNA.

6. 5,641,747, Jun. 24, 1997, Treatment of osteopetrotic diseases; Steven N. Popoff, et al., 514/12; 530/324 :IMAGE AVAILABLE:

US PAT NO: 5,641,747 :IMAGE AVAILABLE: L3: 6 of 20

ABSTRACT:
Bone resorption by osteoclast cells is promoted by activated vitamin D-binding factor, thereby providing an effective treatment for osteopetrosis. Conversely, inflammation-mediated bone loss is inhibited with antibody against the activated factor, providing a treatment for inflammation-mediated osteolytic diseases such as osteoporosis, osteoarthritis, rheumatoid arthritis and periodontal disease. The

antibodies are further utilized in an antigen binding assay for diagnosing inflammation-mediated bone loss.

7. 5,633,425, May 27, 1997, **Transgenic** non-human animals capable of producing heterologous antibodies; Nils Lonberg, et al., 800/2; 435/172.3; 536/23.1, 23.53; 800/DIG.1 :IMAGE AVAILABLE:

US PAT NO: 5,633,425 :IMAGE AVAILABLE: L3: 7 of 20

ABSTRACT:
The invention relates to **transgenic** non-human animals capable of producing heterologous antibodies, i.e., antibodies encoded by **immunoglobulin** heavy and light chain genes not normally found in the genome of that species of non-human animal. In one aspect of the invention, transgenes encoding unrearranged heterologous human **immunoglobulin** heavy and light chains are introduced into a non-human animal thereby forming a **transgenic** animal capable of producing antibodies encoded by human **immunoglobulin** genes. Such heterologous human antibodies are produced in B-cells which are thereafter immortalized, e.g., by fusing with an immortalizing cell line such as a myeloma or by manipulating such B-cells by other techniques to perpetuate a cell line capable of producing a monoclonal heterologous antibody. The invention also relates to heavy and light chain **immunoglobulin** transgenes for making such **transgenic** non-human animals as well as methods and vectors for disrupting endogenous **immunoglobulin** loci in the **transgenic** animal. The invention also includes methods to generate a synthetic **immunoglobulin** variable region gene segment repertoire used in transgene construction and methods to induce heterologous antibody production using animals containing heterologous rearranged or unrearranged heavy and light chain **immunoglobulin** transgenes.

8. 5,622,701, Apr. 22, 1997, Cross-reacting monoclonal antibodies specific for E- and P-selectin; Ellen L. Berg, 424/153.1, 143.1, 152.1, 172.1, 173.1; 435/70.21, 172.2, 334, 343; 530/387.1, 387.3, 388.1, 388.22, 388.7, 389.6; 536/23.53 :IMAGE AVAILABLE:

US PAT NO: 5,622,701 :IMAGE AVAILABLE: L3: 8 of 20

ABSTRACT:
The invention provides monoclonal antibodies that specifically bind to P-selectin and to E-selectin. Many of the antibodies block the functional interactions of P-selectin and E-selectin with the irrespective counterreceptors.

9. 5,612,486, Mar. 18, 1997, **Transgenic** animals harboring APP allele having swedish mutation; Lisa C. McConlogue, et al., 800/2; 435/172.3; 536/23.1, 23.5 :IMAGE AVAILABLE:

US PAT NO: 5,612,486 :IMAGE AVAILABLE: L3: 9 of 20

ABSTRACT:
The invention provides **transgenic** non-human animals and **transgenic** non-human mammalian cells harboring a transgene encoding an APP polypeptide comprising the Swedish mutation.

10. 5,589,362, Dec. 31, 1996, Tetracycline regulated transcriptional modulators with altered DNA binding specificities; Hermann Bujard, et al., 435/69.1, 172.3; 536/23.4, 24.1; 935/6, 10, 34, 36, 47 :IMAGE AVAILABLE:

US PAT NO: 5,589,362 :IMAGE AVAILABLE: L3: 10 of 20

ABSTRACT:
Isolated nucleic acid molecules encoding fusion proteins which regulate transcription in eukaryotic cells are disclosed. The fusion proteins of the invention comprise a Tet repressor having at least one amino acid mutation that confers on the fusion protein an ability to bind a class B tet operator sequence having a nucleotide substitution at position +4 or +6, operatively linked to a polypeptide which regulates transcription in eukaryotic cells. Methods for regulating transcription of a tet operator-linked gene in a cell are also provided. In one embodiment, the method involves introducing into the cell a nucleic acid molecule encoding a fusion protein which regulates transcription, the fusion protein comprising a Tet repressor having at least one amino acid mutation that confers on the fusion protein an ability to bind a class B tet operator sequence having a nucleotide substitution at position +4 or +6, operatively linked to a polypeptide which regulates transcription in eukaryotic cells, and modulating the concentration of a tetracycline, or analogue thereof, in contact with the cell.

11. 5,585,097, Dec. 17, 1996, Humanized anti-CD3 specific antibodies; Sarah L. Bolt, et al., 424/133.1, 154.1; 435/69.6, 320.1; 530/387.3, 388.75; 536/23.53 :IMAGE AVAILABLE:

US PAT NO: 5,585,097 :IMAGE AVAILABLE: L3: 11 of 20

ABSTRACT:

Novel aglycosylated antibodies having a binding affinity for the CD3 antigen complex are of value for use in therapy, particularly in immunosuppression.

12. 5,583,278, Dec. 10, 1996, Recombination activating gene deficient mouse; Frederick W. Alt, et al., 800/2; 424/9.2, 204.1, 234.1; 435/172.3, 320.1; 800/DIG.1, DIG.3; 935/111 :IMAGE AVAILABLE:

US PAT NO: 5,583,278 :IMAGE AVAILABLE: L3: 12 of 20

ABSTRACT:
This invention relates to a recombinant mouse with both alleles of recombination activating gene 2 being functionally deficient. This invention discloses the method to make such mouse and the uses of such mouse.

13. 5,574,205, Nov. 12, 1996, Homologous recombination for universal donor cells and chimeric mammalian hosts; Raju Kucherlapati, et al., 800/2; 424/9.2, 93.21; 435/172.3, 320.1; 800/DIG.1, DIG.2; 935/62, 111 :IMAGE AVAILABLE:

US PAT NO: 5,574,205 :IMAGE AVAILABLE: L3: 13 of 20

ABSTRACT:
Homologous recombination is employed to inactivate genes, particularly genes associated with MHC antigens. Particularly, each of the .beta..sub.2- microglobulin gene and the IFN-.gamma.R gene is inactivated for reducing or eliminating the expression of functional MHC antigens. The resulting cells may be used as universal donor cells. In addition, embryonic stem cells may be modified by homologous recombination for use in producing chimeric or **transgenic** mammalian hosts, which may be

used as source of universal donor organs, or as models for drug and transplantation therapies. Methods for homologous recombination in non-transformed mammalian somatic cells are also described.

14. 5,538,713, Jul. 23, 1996, Primordial implants in immunodeficient hosts; Bruno P eault, 424/9.2, 93.7, 549, 557, 577, 582; 800/2, DIG.5 :IMAGE AVAILABLE:

US PAT NO: 5,538,713 :IMAGE AVAILABLE: L3: 14 of 20

ABSTRACT:
Primordial tissue is introduced into immunodeficient hosts, where the primordial tissue develops and differentiates. The chimeric host allows for investigation of the processes and development of the **xenogeneic** tissue, testing for the effects of various agents on the growth and differentiation of the tissue, as well as identification of agents involved with the growth and differentiation.

15. 5,529,921, Jun. 25, 1996, In vitro activation of cytotoxic t-cells using insect cells expressing human class I MHC and .beta.2-microglobulin; Per A. Peterson, et al., 435/375, 252.3, 320.1 :IMAGE AVAILABLE:

US PAT NO: 5,529,921 :IMAGE AVAILABLE: L3: 15 of 20

ABSTRACT:
The present invention relates to a rational, elegant means of producing, loading and using Class I molecules to specifically activate CD8 cells in vitro, and their therapeutic applications in the treatment of a variety of conditions, including cancer, tumors or neoplasias, as well as viral, retroviral, autoimmune, and autoimmune-type diseases. The present invention also relates to vectors, cell lines, recombinant DNA molecules encoding human .beta.2 microglobulin or Class I MHC molecules in soluble and insoluble form, and methods of producing same.

16. 5,476,996, Dec. 19, 1995, Human immune system in non-human animal; Darcy B. Wilson, et al., 800/2; 424/9.1, 93.1, 93.7, 93.71, 534, 577, 578; 800/DIG.2, DIG.5 :IMAGE AVAILABLE:

US PAT NO: 5,476,996 :IMAGE AVAILABLE: L3: 16 of 20

ABSTRACT:
Laboratory non-human animals in which the immune system of a human donor is induced in and thrives in vivo and expresses the immune response of the human donor in a recipient non-human animal, and wherein malignant immune system cells of the human donor can be induced in the recipient non-human animal by injection of non-malignant donor cells into the recipient are disclosed.

17. 5,434,341, Jul. 18, 1995, **Xenogeneic** lymph node in mammary fat pad; Henry C. Outzen, 800/2; 424/93.7, 553, 578, 580, 582; 800/DIG.5 :IMAGE AVAILABLE:

US PAT NO: 5,434,341 :IMAGE AVAILABLE: L3: 17 of 20

ABSTRACT:
Methods and chimeric immunocompromised hosts comprising functional **xenogeneic** organs are provided, particularly hematopoietic organs, where the **xenogeneic** organ is engrafted into a mammary fat pad. Exemplary is the engrafting of lymph node with mesenteric tissue